LEK FORMATION OF SHARP-TAILED GROUSE

NEAR RENGLENG RIVER, N.W.T.

Wildlife Service
Northwest Territories Renewable Resources

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LEK FORMATION OF SHARP-TAILED GROUSE NEAR RENGLENG RIVER, N.W.T.

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ABSTRACT

On 21 and 22 May 1978, a sharp-tailed grouse (Pedioecetes phasianellus) dancing ground was observed on the north shore of the Rengleng River where it crosses the Dempster highway (133°50' W, 67°51' N) between Inuvik and Arctic Red River, N.W.T. Unlike sharp-tails in more southerly locations, activity on the dancing ground occurred throughout a 24-hour period. Activity peaked during 0000-0400 and 0700-0900 hours. This observation of a lek formation of sharp-tailed grouse is perhaps the most northerly in Canada.

TABLE OF CONTENTS

ABSTRACT iii

LIST OF FIGURES vii

INTRODUCTION 1

METHODS 3

RESULTS AND DISCUSSION 4
Advertising Displays 6
Alarm Calls and Postures 11

RECOMMENDATIONS 13

LITERATURE CITED 14

LIST OF FIGURES

Figure 1.	Location of Rengleng River sharp-tailed grouse dancing grounds	2
Figure 2.	Mound used as territorial nucleus by sharp-tailed grouse on Rengleng River dancing grounds	5
Figure 3.	Lek formation of sharp-tailed grouse, with possible log barrier to define boundaries, on Rengleng River dancing grounds	6
Figure 4.	"Walking or running parallel" display of sharp-tailed grouse on Rengleng River dancing grounds	7
Figure 5.	Beginning of "cooing" display posture of sharp-tailed grouse on Rengleng River dancing grounds	7
Figure 6.	End of "cooing" display posture of sharp-tailed grouse on Rengleng River dancing grounds	8
Figure 7.	"Ritual fighting" of sharp-tailed grouse on Rengleng River dancing grounds	8
Figure 8.	"Tail-rattling" display of sharp-tailed grouse on Rengleng River dancing grounds	10
Figure 9.	"Upright alert" posture of sharp-tailed grouse on Rengleng River dancing grounds	12

INTRODUCTION

The sharp-tailed grouse (Pedioecetes phasianellus) is one of the numerous species of the family Tetraonidae widely distributed in North America, which normally performs breeding season displays in groups. The polygamous males usually gather in the morning at the same location to establish territories and a hierarchy of dominance among neighbours. Suitable display places are used annually, sometimes over several years (Lumsden 1965). Different names are used to describe the display areas depending on the species of grouse. The display area of the sharp-tailed grouse is called a "dancing ground" or "lek". The behaviour is known as a "lek formation" (Lumsden 1965). Although the territorial behaviour of sharp-tails is similar to other lek grouse, some details differ. Hart et al. (1950), Lumsden (1965), and Pepper (1972) have described sharp-tailed grouse displays.

Godfrey (1966) shows the northernmost limit of breeding in the Northwest Territories as approximately following the treeline north of Great Slave Lake, but mentions occurrences being reported only as far north as Ft. MacPherson.

My observations of a lek formation in short-tailed grouse are perhaps the most northerly in Canada. These were made on 21 and 22 May 1978 on the north shore of the Rengleng River where it crosses the Dempster highway ($133^{o}50'$ W, $67^{o}51'$ N) between Inuvik and Arctic Red River in the Northwest Territories (Fig. 1).

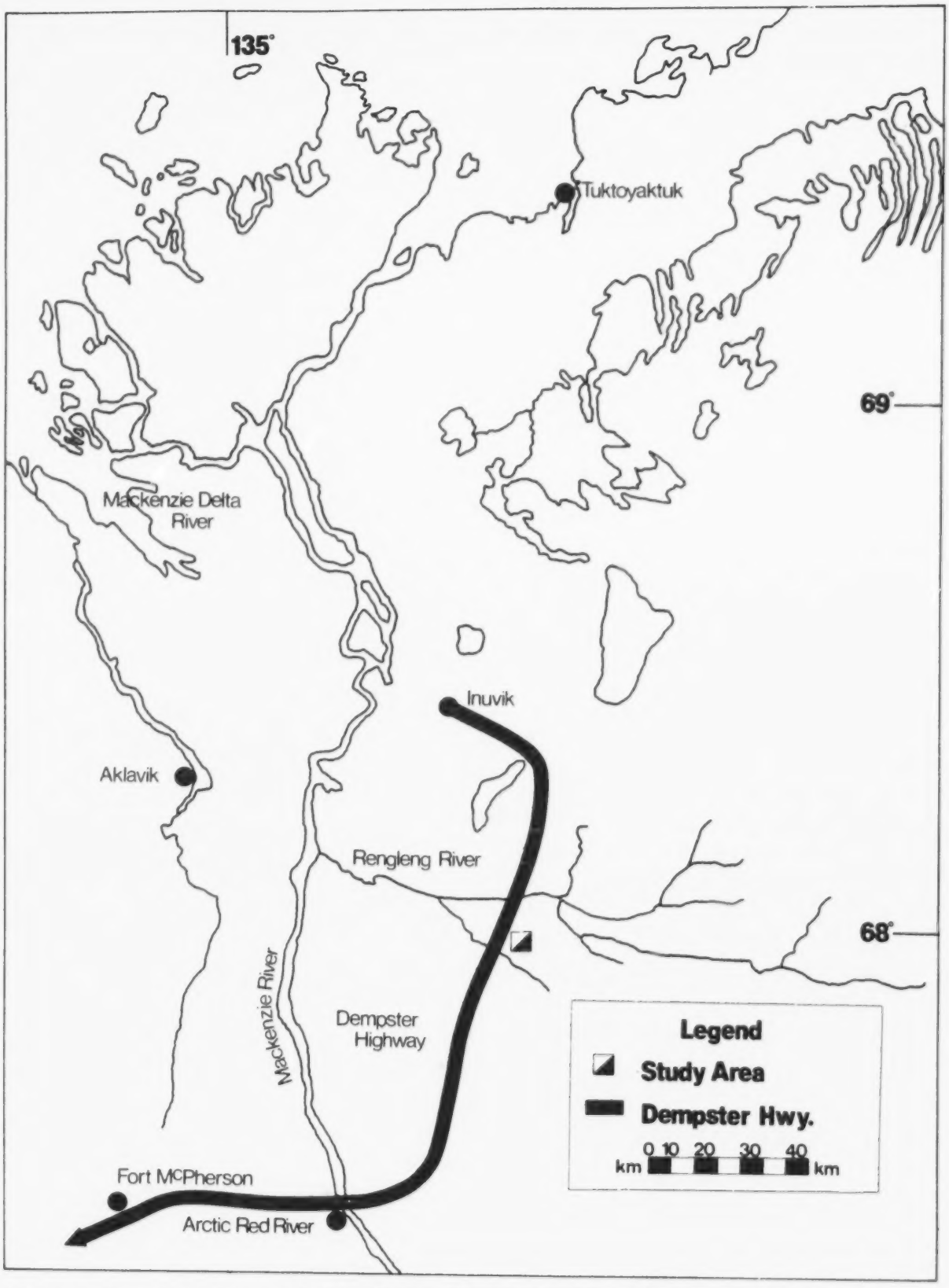

Figure 1. Location of Rengleng River sharp-tailed grouse dancing grounds.

METHODS

Observations on the dancing grounds were made from blinds constructed from trees and branches in the area. They provided good cover and, except for the initial disturbance, caused no disruption of the grouses' behavior. On one occasion when I was in the open, the males continued to display, apparently undisturbed.

Photographs were taken with a hand-held G.A.F. 35 mm single lens reflex camera with a combination of lenses ranging from an 80-250 mm Soligar macro-zoom to a 400 mm Bushnell telephoto. A standard skylight filter was used for some photos. Film was Kodachrome II (ASA 25).

RESULTS AND DISCUSSION

During the spring mating season, males of all lek species of grouse concentrate daily in the early morning, and sometimes in the evening, on or near their dancing grounds. In the study area, however, activity occurred throughout the 24 hours of spring daylight, and peaked during 0000-0400 and 0700-0900 h.

The physical dimensions of the dancing ground were approximately 6 m x 9 m. It was located at the top of a steep bank bordering the Rengleng River. The substrate was composed of gravel and sand, overlain by sedges (Carex spp.), secondary growth of willow (Salix spp.), black spruce (Picea mariana), and profuse amounts of deadfall. The area had been burnt-over in 1968.

At any one time there was a maximum of 12 males on the grounds. On only one occasion was a lone female observed on the dancing grounds. Each male's territory had a small nucleus in which he was clearly dominant. The nucleus is usually a raised bit of ground. The one shown in Figure 2 provided a good horizontal view, and being free of bushes, allowed protection from predators such as gyrfalcons. Other males seldom penetrate this nucleus but when they do, the occupant reacts promptly and the intruder normally flees without resistance. As the distance from the nucleus increases, intrusions by other males occur with increasing success until a point is reached where a bird is no longer successful in intimidating neighbours. This is where most of the "ritual fighting" takes place (Lumsden 1965).

Figure 2. Mound used as territorial nucleus by sharp-tailed grouse on Rengleng River dancing grounds.

Some fighting takes place on the dancing grounds. It is generally associated with the period of territory establishment, but may occur throughout the period of dancing ground occupation. A blind within the boundaries of a covert will sometimes disturb the territorial equilibrium and displace a male so that he falls into conflict with his neighbours. Feathers sometimes fly as birds alternately lunge at one another and fly into the air striking with feet and bill. In prolonged fights, each bird tries to seize the feathers on the neck, flank or back of his opponent.

Physical barriers sometimes define territorial boundaries (Pepper 1972). Although there were fallen logs in the study area, it could not be determined whether or not these functioned as barriers (Fig. 3).

Figure 3. Lek formation of sharp-tailed grouse, with possible log barrier to define boundaries, on Rengleng River dancing grounds.

Advertising Displays

Male sharp-tails have evolved both visual and oral signals to designate their dancing grounds and attract females. Thus, almost all the lek displays of the sharp-tailed grouse, whether aggressive or sexual, serve partially to advertise the dancing ground location.

The sharp-tails on the Rengleng River dancing grounds illustrated most of the advertising displays described by Lumsden (1965). As only one female was seen, "hen cackling" was not heard. "Flutter jumping," when the bird jumps into the air, flies a short distance and lands, was observed; as were "upright advance" of males, "walking or running parallel", and "cooing" displays (Fig. 4, 5 and 6).

"Ritual fighting" was also noted (Fig. 7). This only takes place in the neutral areas between territories. The movements of

Figure 4. "Walking or running parallel" display of sharp-tailed grouse on Rengleng River dancing grounds.

Figure 5. Beginning of "cooing" display posture of sharp-tailed grouse on Rengleng River dancing grounds.

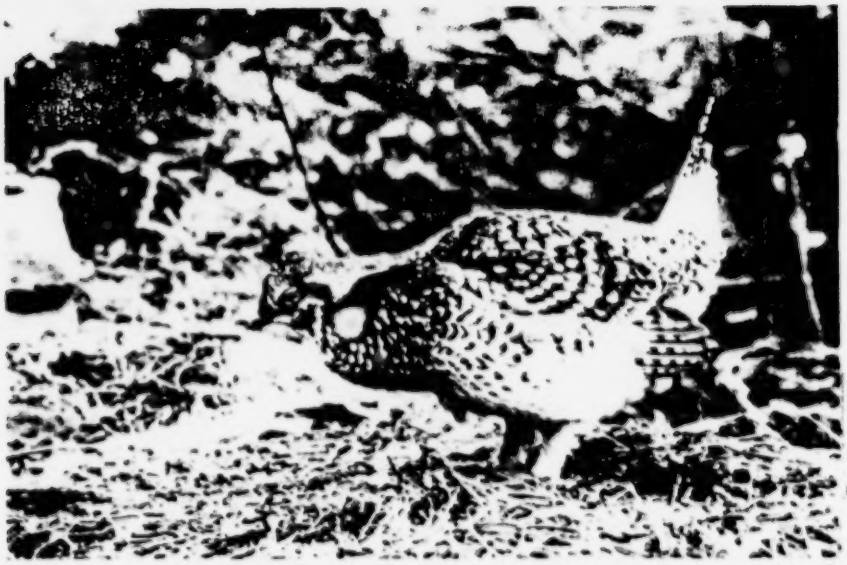

Figure 6. End of "cooing" display posture of sharp-tailed grouse on Rengleng River dancing grounds.

Figure 7. "Ritual fighting" of sharp-tailed grouse on Rengleng River dancing grounds.

"ritual fighting" occur when two males run or walk toward one another. They stop about 30 cm apart and squat, often with wings half-open. The crest is lowered but the combs are prominent. One then makes a lunge at the other, who retreats. Occasionally the ritual degenerates into a brief bout of real fighting, but usually no blows are struck.

The "tail-rattling" display of the cock sharp-tail is the most colorful of all the displays (Fig. 8). The bird's body is parallel to the ground, and held high on relatively straight legs. The neck is lowered, but not fully extended, and the head is carried horizontally with the beak pointing forward and a little lower than the level of the back. The yellow combs above the eyes are fully expanded and rise in two projections above the crown. Crest feathers are flattened and the feathers of the neck are erected and stand up as two dark brown ridges with a distinct hollow between them. The purple skin of the apteria is exposed to view but not inflated. Wings are held down, either half extended or fully extended, with primary feathers curved downward and the tips almost touching the ground. The tail is erected vertically and sometimes tilted slightly forward. Rump feathers are parted and white undertail coverts are conspicuously puffed out.

The male begins his dance in this posture with rapid stamping or short quick steps. He may remain stationary, or turn 180^{o}. Loud or rapid clicks are produced with the tail feathers and a variety of calls are uttered during stamping. Sometimes the display includes "cooing" signified by purple patches of skin on the neck which swell into view. The two displays together occur exclusively during aggressive encounters.

Figure 8. "Tail-rattling" display of sharp-tail grouse on Rengleng River dancing grounds.

Dances occur in 2 to 5 second bursts with silent pauses in between, when the cocks simultaneously stop "tail-rattling" and stand motionless. Except for these short pauses, "tail-rattling" is performed almost continuously when hens are present on a dancing ground (Lumsden 1965).

The "posing" display is similar to "tail-rattling" (Lumsden 1965) except that the head and neck are not usually extended as far forward and the wings are held closer to the flanks. The combs above the eyes are particularly prominent during "posing". This display, which occurs with the male standing motionless before the hen, and another display called a "nupital bow", are premating behaviours. No mating or "nupital bow" displays were observed on the Rengleng River grounds.

Alarm Calls and Postures

Sharp-tailed grouse indicate uneasiness or alarm in several ways. Different calls and postures reflect the intensity of uneasiness. Generally, the birds express uneasiness by standing upright without uttering a sound.

Sharp-tails show three responses to an alarm. The "upright alert" posture usually occurs in response to an avian predator (Fig. 9). The "prostrate alert" posture is commonly assumed at the appearance of humans. It is seldom observed because the first indication humans usually have of the birds' presence is when they explode into the air. "Alarm strutting" occurs under similar circumstances to the "upright alert" posture, but differs in that there is movement. The bird increases his height as much as possible by craning his neck, tilting his body to an almost vertical position, and standing and walking on legs as straight as possible. He walks around or away from the source of alarm with a stiff gait, occasionally flicking his tail. He jerks his head and neck with quick exaggerated movements.

In most territorial displays, and even when not engaged in any particular activity, males hold their tails cocked upward. The white undertail coverts are conspicuous and the almost constant movement of the birds attracts attention even in poor light.

All calls associated with lek displays can be heard 1.6 km away under good conditions and signify the birds' location.

Figure 9. "Upright alert" posture of sharp-tailed grouse on Rengleng River dancing grounds.

RECOMMENDATIONS

The Rengleng River dancing grounds are easily accessible to hunters, weekend campers and sport fishermen, but the lek formation is usually completed by the time recreational use begins. However, because the lek behaviour is unique and occurs for only a few days each spring, the area should be protected through general highway patrols to ensure that the birds are not disturbed. The area and the birds' presence are relatively unknown to most people.

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